WHAT IS CLAIMED IS:

1. A bi-directional printing apparatus that bi-directionally prints images on a print medium during forward and reverse main scanning passes in accordance with print image signals, the printing apparatus comprising:

a print head able to print dots at each pixel position on the print medium,

a main scanning drive mechanism that effects bi-directional main scanning by moving at least one selected from the print medium and the print head,

a sub-scanning drive mechanism that effects sub-scanning by moving at least one selected from the print medium and the print head,

a head driver that supplies drive signals to the print head to effect printing on the print medium, and

a controller for controlling bi-directional printing, the controller including a printing position adjuster that uses an adjustment value to reduce printing positional deviation arising between forward and reverse main scanning passes,

wherein the printing position adjuster includes:

(i) a first memory for storing a reference correction value for correcting printing positional deviation arising between forward and reverse main scanning passes with respect to specific reference dots formed by the print head;

(ii) a second memory for storing a relative correction value prepared beforehand for correcting the reference correction value; and

(iii) an adjustment value determination section that determines the adjustment value, the adjustment value determination section having at least a first adjustment mode in which the adjustment value is determined by correcting the reference correction value with the relative correction value.

2. A bi-directional printing apparatus according to claim 1, wherein the print head has a plurality of nozzle rows;

the reference correction value is a correction value for correcting printing positional deviation arising between forward and reverse main scanning passes with respect to a reference row of nozzles; and

the relative correction value is a correction value for correcting relative printing positional deviation of another row against the reference row.

3. A bi-directional printing apparatus according to claim 2, wherein the reference row is a row of nozzles for emitting black ink and the another row includes a row of nozzles for emitting chromatic color ink.

4 A bi-directional printing apparatus according to claim 2, wherein the second memory stores the relative correction value that is applied in common to the rows of nozzles other than the reference row.

5 A bi-directional printing apparatus according to claim 2, wherein the second memory stores the relative correction values that are applied independently to respective rows of nozzles other than the reference row.

6 A bi-directional printing apparatus according to claim 2, wherein the second memory stores the relative correction values that are applied independently to respective groups of nozzles for emitting respective inks.

7 A bi-directional printing apparatus according to claim 1, wherein

the print head is capable of printing N types (where N is an integer of 2 or more) of dots which are different at least in size;

the reference dots are one type of dots selected from among the N types of dots; and

the adjustment value is applied in common to the N types of dots in the first adjustment mode.

8 A bi-directional printing apparatus according to claim 7, wherein the reference dots are largest of the N types of dots.

9 A bi-directional printing apparatus according to claim 7, wherein the relative correction value substantially represents a difference between an amount of positional deviation relating to target dots and an amount of positional deviation relating to the reference dots, the target dots including at least one type of dots among the N types of dots, the at least one type of dots including dots smaller than the reference dots.

10 A bi-directional printing apparatus according to claim 9, wherein the target dots are smallest of the N types of dots.

11 A bi-directional printing apparatus according to claim 9, wherein the target dots include plural types of dots of different sizes, and an average of the positional deviation amounts of the plural types of dots is used as the positional deviation amount for the target dots.

12 A bi-directional printing apparatus according to claim 9, wherein the reference dots are formed of black ink and the target dots are formed of chromatic color ink.

13 A bi-directional printing apparatus according to claim 1, wherein the adjustment value determination section has a second adjustment mode in which the reference correction value is used as the adjustment value.

14 A bi-directional printing apparatus according to claim 13,

wherein the adjustment value determination section effects correction of printing positional deviation in accordance with the first adjustment mode during color printing, and effects correction of printing positional deviation in accordance with the second adjustment mode during monochrome printing.

15 A bi-directional printing apparatus according to claim 1, wherein the reference correction value is determined according to correction information indicative of a preferred correction state that is selected from among test patterns of positional deviation printed using the reference dots.

16 A bi-directional printing apparatus according to claim 1, wherein the bi-directional printing apparatus is capable of performing main scanning at a plurality of main scanning velocities, and the second memory stores the relative correction values that are applied independently to the plurality of main scanning velocities.

17 A bi-directional printing apparatus according to claim 1, wherein the bi-directional printing apparatus is capable of emitting ink in a plurality of dot emission modes of mutually different ink emission velocities, and the second memory stores the relative correction values that are applied independently to the plurality of dot emission modes.

18 A bi-directional printing apparatus according to claim 1, wherein the second memory is a non-volatile memory provided within the bi-directional printing apparatus.

19 A bi-directional printing apparatus according to claim 1, wherein the second memory is attached to the print head so that the print head with the second memory is detachably attached to the bi-directional printing apparatus.

20. A bi-directional printing method with a printing apparatus having a print head for bi-directionally printing images on a print medium during forward and reverse main scanning passes in accordance with print image signals, the method comprising the steps of:

(a) setting a reference correction value for correcting printing positional deviation arising between forward and reverse main scanning passes with respect to specific reference dots formed by the print head;

(b) determining an adjustment value to reduce printing positional deviation arising between forward and reverse main scanning passes; and

(c) adjusting the printing positional deviation between forward and reverse main scanning passes using the adjustment value;

wherein the step (b) includes the step of determining the adjustment value in a first adjustment mode in which the adjustment value is determined by correcting the reference correction value with a relative correction value prepared beforehand for correcting the reference correction value.

21. A bi-directional printing method according to claim 20, wherein the print head has a plurality of nozzle rows;

the reference correction value is a correction value for correcting printing positional deviation arising between forward and reverse main scanning passes with respect to a reference row of nozzles; and

the relative correction value is a correction value for correcting relative printing positional deviation of another row against the reference row.

22. A bi-directional printing method according to claim 21, wherein the reference row is a row of nozzles for emitting black ink and the another row includes a row of nozzles for emitting chromatic color ink.

23 A bi-directional printing method according to claim 21, wherein the relative correction value is applied in common to the rows of nozzles other than the reference row.

24 A bi-directional printing method according to claim 21, wherein the relative correction value is prepared for each row of nozzles other than the reference row so that the relative correction values are applied independently to the respective rows of nozzles other than the reference row.

25 A bi-directional printing method according to claim 21, wherein the relative correction value is prepared for each groups of nozzles for emitting respective inks so that the relative correction values are applied independently to the respective groups of nozzles for emitting respective inks.

26 A bi-directional printing method according to claim 20, wherein

the print head is capable of printing N types (where N is an integer of 2 or more) of dots which are different at least in size;

the reference dots are one type of dots selected from among the N types of dots; and

the adjustment value is applied in common to the N types of dots in the first adjustment mode.

27 A bi-directional printing method according to claim 26, wherein the reference dots are largest of the N types of dots.

28 A bi-directional printing method according to claim 26, wherein the relative correction value substantially represents a difference between an amount of positional deviation relating to target dots and an amount of positional deviation relating to the reference dots, the target dots including at least one type of dots among the N types of dots, the at least one type of

dots including dots smaller than the reference dots.

29 A bi-directional printing method according to claim 28, wherein the target dots are smallest of the N types of dots.

30 A bi-directional printing method according to claim 28, wherein the target dots include plural types of dots of different sizes, and an average of the positional deviation amounts of the plural types of dots is used as the positional deviation amount for the target dots.

31 A bi-directional printing method according to claim 28, wherein the reference dots are formed of black ink and the target dots are formed of chromatic color ink.

32 A bi-directional printing method according to claim 20, wherein the step (b) further includes the step of determining the adjustment value in a second adjustment mode in which the reference correction value is used as the adjustment value.

33 A bi-directional printing method according to claim 32, wherein the adjustment of printing positional deviation is executed in accordance with the first adjustment mode during color printing, and in accordance with the second adjustment mode during monochrome printing.

34 A bi-directional printing method according to claim 20, wherein the reference correction value is determined according to correction information indicative of a preferred correction state that is selected from among test patterns of positional deviation printed using the reference dots.

35 A bi-directional printing method according to claim 20, wherein the printing apparatus is capable of performing main scanning at a plurality

of main scanning velocities, and the relative correction value is prepared for each main scanning velocity so that the relative correction values are applied independently to the plurality of main scanning velocities.

36 A bi-directional printing method according to claim 20, wherein the printing apparatus is capable of emitting ink in a plurality of dot emission modes of mutually different ink emission velocities, and the relative correction value is prepared for each dot emission mode so that the relative correction values are applied independently to the plurality of dot emission modes.

37. A computer program product storing a computer program for causing a computer to bi-directionally printing images on a print medium during forward and reverse main scanning passes, the computer including a printing apparatus having a print head for printing plural types of dots on the print medium, the computer program product comprising:

a computer readable medium; and

a computer program stored on the computer readable medium;

wherein the computer program causes the computer to determine an adjustment value to reduce printing positional deviation arising between forward and reverse main scanning passes in accordance with a first adjustment mode in which the adjustment value is determined by correcting a reference correction value for specific reference dots with a relative correction value prepared beforehand for correcting the reference correction value, and to adjust the printing positional deviation between forward and reverse main scanning passes using the adjustment value.